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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/887,888	06/22/2001	Thomas C. Fall	SJ-96055	8013

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EXAMINER

BAKER, STEPHEN M

ART UNIT	PAPER NUMBER
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2133

DATE MAILED: 04/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/887,888

Applicant(s)

FALL, THOMAS G.

Examiner

Stephen M. Baker

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2004.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☒ Claim(s) 10-18 is/are allowed.
6) ☒ Claim(s) 1-9 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 23 January 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because in lines 3-4, as previously noted by the examiner, "interval of the bursts of data" apparently should be "durations of bursts of noise in the data". This is based on the background of the invention and the discussion of the invention provided by applicant. On page of applicant's background discussion, the only "bursts" mentioned are error bursts. Of the present invention, page 1, lines 11-12 apparently state that "(t)he present approach differs in how the spreading of the burst is accomplished", and lines 13-14 refer to "spreading the effects of a noise burst out over a longer interval", in the context of interleaving. The paragraph starting on page 14, line 13 refers to the length relationship between a "noise burst" and "threads".

Correction is required. See MPEP § 608.01(b).

2. The disclosure is objected to because of the following informalities:

Regarding page 1, lines 5-7, the examiner reminds applicant again that error "bursts" are treated as being synonymous with "random errors", which contradicts standard terminology in the art. To correct this, "random errors" in line 5 of page one apparently should read as "interference-induced errors".

Regarding page 14, lines 9+, the examiner reminds applicant again that an intended scope of a "sample" and a "thread" that could justify the use of such idiosyncratic terms is unclear in the context provided.

Regarding pages 17-18, the examiner reminds applicant again that numerous references to Fig 4a as showing a "device 10" appear to be inaccurate, as Fig. 4a apparently shows a processing flow, rather than a "device". Applicant's semi-rational response to the previous observation of this was to amend the specification to refer to both a "method 20" and a "method 10" (third-from-last line on page 3 of the amendment) and to avoid correspondingly amending Figures 5 and 6 to show any "method 20".

Regarding page 19, the examiner reminds applicant again that, in the amendment to line 22, "sampled 22 in threads" apparently should be "sampled 22 and placed into threads".

The examiner reminds applicant again that It is unclear what, if anything significant, constitutes a "thread" in the context provided. On page 17, line 37 states, "(e)ach of these stacks 14 represents a thread", however only one item 14 is shown, and page 16, line 15 confusingly indicates that "14" is a processor wherein "(e)rror detection and correction computations are performed". The registers 11 appear to have the closest correspondence to a "thread", however there appear to be exceptions to a one-to-one correspondence between threads and registers, e.g. on page 16, lines 32-33, "two registers may be used to take every other symbol of a thread".

Appropriate correction is required.

Drawings

3. The drawings are objected to because in Figs. 5 and 6, "10" apparently should be "20", to agree with the amendment filed 23 January 2004.
4. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
6. Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1: in line 6, "into the data stream" is not consistent with the rest of the claim, as the "data stream" has already been transformed into "threads".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

7. Claims 1, 4-6 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,432,787 to Chethik (hereafter Chethik).

Chethik discloses a coding arrangement for correcting errors in transmitted packets by transmitting a parity packet for every "L" data packets. Loading packets into

a FIFO transmit packet buffer (34) involves "dividing a data stream into symbols", the "symbols" being bits (1, 2, 3, 4, ..., N) or packet-sized words, to be placed in respective buffer storage locations. As a packet is placed in position (42) within the buffer, it is "sampled" for input to a summing array (44-50) in a packet-sized "thread". Thus Chethik shows "sampling the divided data stream in threads, wherein samples are taken at fixed time intervals". A MUX (36) enables "inserting a correction symbol into the data stream to mix the correction symbol with data symbols that have a fixed time separation", as Chethik's parity packets, during a duration of constant "L", are equally spaced among the data packets. Chethik's coding system is for "transmitting the data stream". At a receiver for the data encoded in Chethik's system, there is to provided the steps of "receiving the transmitted data stream", "performing error detection and correction computation on the data and error correction symbols" and "outputting the error corrected data".

Regarding claims 4-6, Chethik's buffer data is organized as bits, bytes, and packet-long "words".

Regarding claim 8, Chethik's coding is a form of longitudinal redundancy check (LRC), which is a type of CRC.

8. Claims 1 and 3-8 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,546,474 to Sako *et al* (hereafter Sako).

Sako discloses a coding arrangement for correcting errors in compact disk data. Applying words to a first interleaver/coder combination (1,8) involves "dividing a data stream into symbols". When a word is in position to be applied to the first

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interleaver/coder combination, it is "sampled" by the interleaver/coder combination in a word-sized "thread" with byte-sized or word-sized "symbols". Thus Sako shows "sampling the divided data stream in threads, wherein samples are taken at fixed time intervals". Forming the final CIRC words involves "inserting a correction symbol into the data stream to mix the correction symbol with data symbols that have a fixed time separation", as the positions of the correction symbols within the codewords, as well as the length of the codewords, is constant. Sako's coding system is for "transmitting the data stream". At a decoder for the data encoded in Sako's system, there is to provided the steps of "receiving the transmitted data stream", "performing error detection and correction computation on the data and error correction symbols" and "outputting the error corrected data".

Regarding claims 4-6, Sako's data is organized as bits, bytes, and words.

Regarding claim 7: error bursts in Sako's decoded data may be only a few bytes in length, or longer.

Regarding claim 8, Sako's coding is a form of Reed-Solomon coding, which is a type of CRC.

Claim Rejections - 35 USC § 103

9. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chethik.

Chethik does not disclose sending the packets on a satellite link. Official Notice is given that the advantages of relaying packets on a satellite link were well known at the time the invention was made. It would have been obvious to a person having

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ordinary skill in the art to apply Chethik's coding system to transmissions to be relayed on a satellite link. Such an application would have been obvious because the advantages of relaying packets on a satellite link were already well known.

Response to Arguments

10. Applicant's arguments filed 23 January 2004 have been fully considered but they are not persuasive.

Applicant makes no appreciable effort to be responsive to any but the most obvious errors pointed out in the previous Office action.

In arguing for not correcting "interval of the bursts of data" to read as "durations of noise bursts in the data", applicant points to a portion of the disclosure (page 19, lines 9-10) previously objected to by the examiner, without making any effort to address the objection. By making the suggested change applicant would merely be making the abstract self-consistent wherein it is also stated that "a noise burst on the channel ... will be within the limits of ... one of the threads", and would merely be carrying out the effects of already-made amendments to full completion.

In arguing to keep the vague language "mixed with symbols of the data stream that have a fixed time separation" instead of "mixed with symbols of the data stream, next to symbols that have a fixed time separation", applicant again points to a portion of the disclosure (page 19, lines 11-13) previously objected to by the examiner, without making any effort to address the objection. By making the suggested change, applicant would merely be consistent with the meaning of "with", because data inserted into a

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stream is inherently *already* “with” *all of* the data of the stream, and would merely be carrying out the effects of already-made amendments to full completion, in addition to being consistent with applicant’s apparently specious arguments citing the examiner’s suggested amended language.

In arguing for confusing the terms “random errors” and “bursty errors” in applicant’s needless and pedantic discussion of the background, applicant does not explain how referring to a “burst error” as “random” adds anything of significant use to one skilled in the channel coding art. Obviously, burst errors have a limited amount of randomness, but that does not justify overly-pedantic suggestions that “burst errors” are “random errors”, at least without adding further needless, overly-pedantic qualification.

In arguing against the rejections based on the Chethik and Sako patent disclosures, applicant notes that Chethik does not use applicant’s vague and idiosyncratic terms, to wit: “sampling”, “symbol” and “threads”. Applicant’s “sampling” is described in no way to suggest that it could be anything more than what is necessary to transfer a bit, byte or word between logic circuits. Applicant appears to believe that referring to data as a “symbol”, whether the data is a bit, byte, or word, adds some description further limiting the data, although it clearly does not. While it is granted that Chethik and Sako do not use the largely meaningless and idiosyncratic term “thread” in confusingly inconsistent ways to refer to various strings of data and so to presumably hinder the examination process, the examiner believes that this is merely because Chethik’s and Sako’s disclosures is for the most part designed to be easily interpretable.

Applicant essentially argues that Chethik's correction symbols are not positioned in the coded output so to be "next to data symbols that have a fixed time separation" without going through the trouble of explaining why the ability of Chethik's device to insert equally-spaced (after every L data packets) parity packets into the output stream, during times when the value of L is held constant, should be imagined as showing something that doesn't clearly contradict applicant's assertion.

Applicant also attempts to argue against the Chethik-based rejections by noting that "the present invention may have more than one register for each data segment, or some data segments may have a different value of L than others", although any language which would suggest such features is notably lacking in the claims cited by the Chethik-based rejections.

Applicant attempts to argue against the Sako-based rejections by noting that Sako doesn't disclose "differential treatment of different data segments", although any language which would suggest such a feature is notably lacking in the claims cited by the Sako-based rejections.

Allowable Subject Matter

11. Claims 10-18 are allowed.
12. Claim 9 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

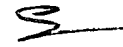
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. Baker whose telephone number is (703) 305-9681. The examiner can normally be reached on Monday-Friday (11:00 AM - 7:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert DeCady can be reached on (703) 305-9595. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Stephen M. Baker
Primary Examiner
Art Unit 2133

smb